

Docket No. 245156US3CIP/hc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Tsutomu OKABE, et al.

SERIAL NO: 10/706,915

GAU:

FILED: November 14, 2003

EXAMINER:

FOR: WAFER PROCESSING APPARATUS HAVING DUST PROOF FUNCTION

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☒ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

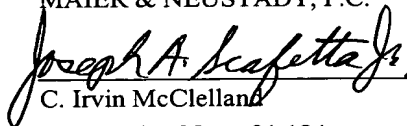
- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

  
C. Irvin McClelland

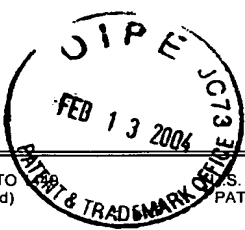
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Form PTO  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

245156US3CIP

SERIAL NO.

10/706,915

## LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Tsutomu OKABE, et al.

FILING DATE

November 14, 2003

GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO					
	AP					
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	PRI, Automation, OEM Systems, 10 pages, "IFE INTEGRATED FRONT END SYSTEM", June 1997				
	AX					
	AY					
	AZ					<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



### LIST OF RELATED CASES

<u>Docket Number</u>	<u>Serial or Patent Number</u>	<u>Filing or Issue Date</u>	<u>Inventor/ Applicant</u>
245156US3 CIP*	10/706,915	11/14/03	IGARASHI et al.
245166US CIP	10/706,977	11/14/03	OKABE et al.

\*Present Application; listed for information

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CLAIMS:

1. A wafer processing apparatus including a mini-environment portion having a chamber therein that is pressurized to a pressure higher than that of the exterior thereof and used for transferring a wafer between a clean box having a lid and housing the wafer and the chamber, said apparatus comprising:

a first opening portion which is formed on a part of a wall comprising the chamber to be in communication with the chamber, facing to an opening of the clean box so as to allow loading and unloading the wafer between the clean box and the mini-environment portion; and

a door that closes, when the transfer of the wafer is not performed, the first opening portion and opens, when the transfer of the wafer is performed,

wherein a gas flow path from the chamber to the exterior of the mini-environment portion is formed such that a flow rate of gas flowing from the chamber to the exterior of the mini-environment portion in case that the wafer transferring operation is not performed becomes substantially equal to a flow rate of gas flowing out from a space formed from the chamber and the clean box in case that the wafer transferring operation is performed.

2. A wafer processing apparatus according to claim 1, wherein a gas flow path of the gas flowing out from the space formed from the chamber and the clean box in case that the wafer transferring operation is performed includes a space formed around the opening of the clean box, and

the gas does not flow into the inner space of the clean box.

3. A wafer processing apparatus according to claim 1, wherein a gas flow path of the gas flowing out from the chamber to the exterior of the mini-environment portion in case that

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<b>Related Pending Application</b>
Related Case Serial No: 161706,977
Related Case Filing Date: 11-14-03

the wafer transferring operation is not performed includes an aperture formed when the door closes the first opening portion.

4. A wafer processing apparatus according to claim 1, wherein a flow rate of the gas flowing the gas flow path is set so as to maintain the pressure in the chamber higher than that of the mini-environment portion, not to direct a gas flow flowing out from the space formed from the chamber and the clean box in case that the wafer transferring operation is performed, into the inner space of the clean box, and not to carry dust by the gas into inner space of the clean box.

## ABSTRACT OF THE DISCLOSURE

The wafer processing apparatus includes a chamber that is pressurized to a pressure that is higher than the pressure of the exterior thereof, an opening portion through which the interior and the exterior of the chamber are in communication with each other, and a door that closes the opening portion. When the opening portion is closed by the door, a portion of the opening remains as an aperture uncovered by the door. In conventional semiconductor wafer processing apparatus, the interior of the apparatus is sealed and pressurized in order to keep a high degree of cleanness in the wafer processing portion, and therefore airflow is generated due to a pressure difference between the interior and the exterior of the apparatus. With the above feature of the invention, it is possible to suppress creation of such airflow and prevent dust from entering the wafer processing apparatus to eliminate wafer contamination.